6.5" LCD DISPLAY

SlimLine
Model Number
6500

ROSEN AVIATION

ROSEN AVIATION

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6500 TECHNICAL MANUAL

Document # 9002751 Rev D

Compliant to DO-160D

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Introduction and Display Overview

Welcome to the *6500 Technical Manual* for the 6.5" LCD display. This manual provides an overview of the following information:

- Pinouts
- Installation
- Operation
- Technician Mode
- Troubleshooting
- Specifications

The 6500 base model includes the following features:

- Two Year Warranty
- 6.5” Diagonal Screen
- 400 NIT Brightness
- 6.91” (W) x 5.90” (H) x 1.18” (D)
- Brightness, Hue, Saturation, and Contrast Adjustments
- NTSC/PAL/SECAM/RS170 (B&W) Video Standards
- 640 x 480 Screen Resolution (VGA)
- On Screen Display (OSD) Functions
- Status LED
- 28 Volt DC Power Operation
- Front Panel Menu Operation

The 6500 series monitor offers the following options:

- Center, Right, Left Mount Arm with Plug-in® Mini-Base Receptacle
- Video Source Select Switch
- Pogo Pin Plug and Base Assemblies

Pinouts

Pinout descriptions are provided to assist in the wiring process. Pay close attention to the pinout information while completing wiring connections.

Warning!
This Display is for Entertainment Purposes Only! Connect to the Non-Critical Power Bus.

Main Interface Connectors

The 6.5 SlimLine has either one or two main interface connectors, depending on the SlimLine base receptacle model you purchased. The following tables list main interface connectors and mating connectors per base receptacle model.

SlimLine Base Receptacle Models:
0100-002, 0100-004, 0100-041, and 0100-042

Connector: 9 Pin Male D-Subminiature
Mate: 9 Pin Female D-Subminiature
Rosen Connector Kit part number 0300-022

Pin #	Monitor Signal
1	Chassis Ground
2	+28V DC
3	DC Return
4	Select Switch*
5	Select Switch Return*
6	Reserved
7	Video Signal Input
8	Video Ground
9	Reserved

*Pins 4 and 5 connect to a momentary relay switch for external control. For example, it can be connected to a cabin management system for video source switching.

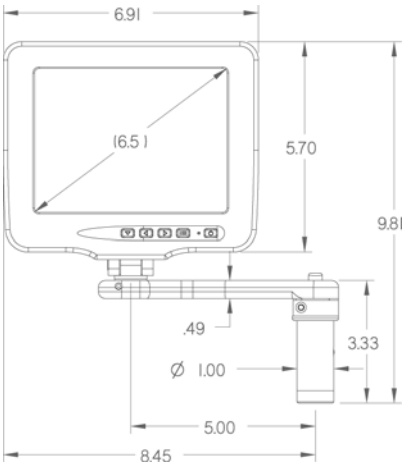
SlimLine Base Receptacle Models:
0100-005 and 0100-040

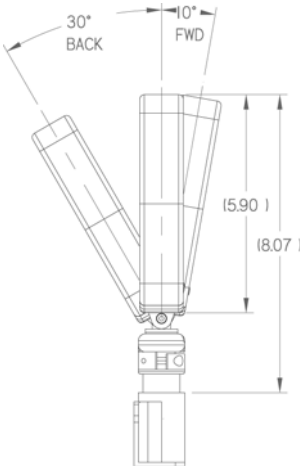
Video Connector: BNC Jack, AMP part number 221199-5 **Mating Video Connector**: BNC Plug, AMP part number 221185-8	
Pin #	**Monitor Signal**
BNC signal	Video Signal
BNC shield	Video Return
Power Connector: Female 3 pin, .062" Molex **Mating Power Connector**: Molex 03-06-2033 **Mating Power Contact**: Molex 02-06-2103	
Pin #	**Monitor Signal**
Molex 1	+28V DC
Molex 2	DC Return
Molex 3	Reserved

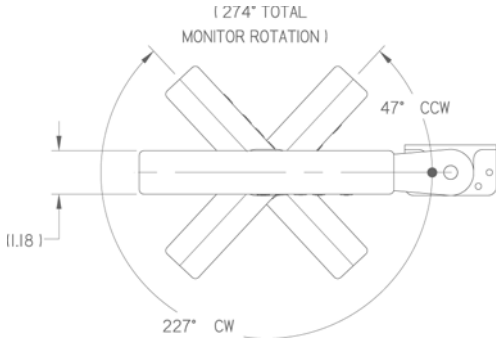
Installation Guidelines

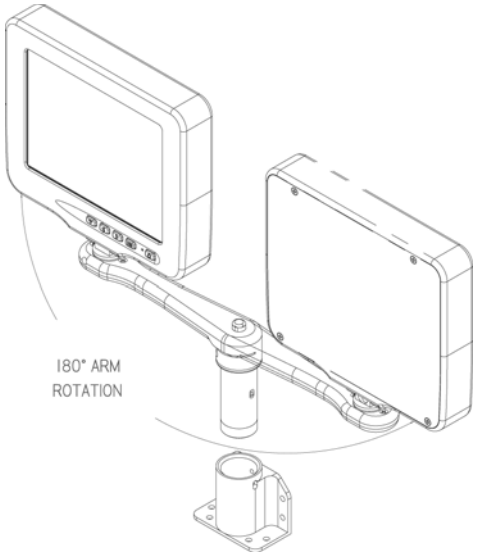
The following drawings are provided to assist the installation process for your 6.5 display. Pay close attention to dimensions and rotations when considering installation requirements.

Note: The dimensions listed are listed in inches.



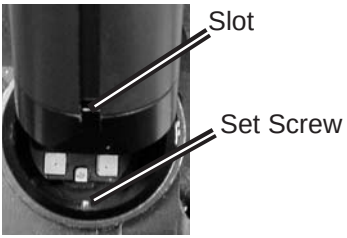



(274° TOTAL
MONITOR ROTATION)
47° CCW
(1.18)
227° CW


180° ARM
ROTATION

Operation

Ensure that when plugging the arm into the base receptacle, the set screw in the base follows the arm's keyed slot and the connection is not forced.

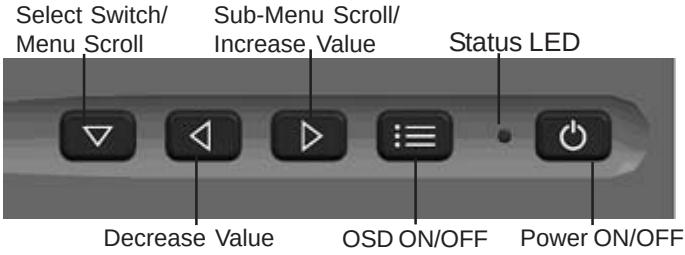


Use the buttons on your 6.5" Display to control screen setup and choose between video source options.

Buttons and screen options are defined in this section on page 9.

6.5" Display Button Functions

Display buttons are shown and defined below.



Select Switch/Menu Scroll: Press this button to switch between video source options , or to scroll down when viewing On Screen Display (OSD) menu options.

Decrease Value: Press this button during normal operation to decrease backlight intensity. When using the OSD, press this button to decrease an OSD menu's range value.

Sub-Menu Scroll/Increase Value: Press this button during normal operation to increase backlight intensity. When using the OSD, press this button to scroll to an OSD sub-menu when available, or use it to increase an OSD menu's range value.

OSD ON/OFF: Press this button to display the OSD Main menu. Pressing the button again will remove the OSD menu from the screen.

Status LED: The Status LED shows red when the display is in standby mode, green when the display is active, and amber when the Select Switch is pressed.

Power ON/OFF: Press this button to turn the display ON or OFF.

On Screen Display (OSD) Main Menu

The On Screen Display (OSD) provides a set of menus that enable users to adjust or view screen setup features. Some Main menu selections lead to submenus with additional setup options. Press the OSD ON/OFF button to view the Main menu. Main menu options are described below, and then available sub-menus are listed in the tables that follow.

Main Menu Options	Description
Brightness	Use display buttons to increase or decrease these options' range values
Contrast	
Color	
Tint	
Sharpness	
Backlight Dimming	
Advanced Menu	Use display buttons to access the Advanced menu's sub-menu

Advanced Menu

Options	Description
OSD Time-Out	Use display buttons to adjust the range of time that elapses before a menu will time-out
Power Up	Use display buttons to select Auto-on, Auto-off, or Restore. Choose Auto-on to have the display turn ON when power is applied. Choose Auto-off to have the display go into Standby mode when power is supplied. Choose Restore to have the display return to its last power-ON status if power is interrupted
RGB Auto Detect	This Option is not available with this Display
Restore Defaults	Select this option to restore factory default settings
Video Formats	Scroll to this selection's sub-menu to view video format options (shown on the next page)

Advanced Menu Options	**Description**
Select Switch	Adjust Relay Active Time to set the time delay when pressing the Select Switch to change video sources Adjust Repeat Delay to set the time delay when pressing and holding the Select Switch to change video sources
Monitor Info	Scroll to this selection's sub-menu to view monitor information (see below)
Back	Select this option to return to the Advanced menu

Video Formats Sub-Menu Options	**Description**
NTSC/PAL/SECAM or NTSC/PAL Only	Use display buttons to select between the two choices of auto detection. The Display will automatically detect and switch to the input video standard*
Back	Select this option to return to the Advanced menu

*If the image is black and white when switching from SECAM to PAL video standard, press the Select switch

Monitor Info Sub-Menu Options	**Description**
Hours	This option displays the hour and minutes of the display's life
SW Rev	This option displays the current software revision
Power Cycles	This option displays the number of times power has been cycled
Source	This option displays the current selected video standard (NTSC/PAL/SECAM)

continued...

Monitor Info Sub-Menu Options Continued...	**Description**
Temperature Menu	Scroll to this selection's sub-menu to view monitor temperature information (shown below)
Signal Level	This option will show Low, Good, or High. If the signal shows Low or High, adjust the video level at the source
Back	Select this option to return to the Advanced menu

Temperature Sub-Menu Options	**Description**
Current Temperature	This option displays the most recent temperature reading within the display. Temperature readings update approximately every 30 seconds
Avg Temp	This option displays the average of approximately the last eight current temperatures
Max Temp	This option displays the highest temperature ever recorded within the display
Min Temp	This option displays the lowest temperature ever recorded within the display
Over Temp	This option displays the number of over-temperature shut downs that have occurred. *A safety feature shuts down the monitor if it reaches or exceeds 140 degrees Fahrenheit

continued...

Temperature Sub-Menu Options Continued...	**Description**
Under Temp	This option displays the number of under-temperature shut downs that have occurred. *A safety feature shuts down the monitor if it reaches or drops below 32 degrees Fahrenheit
Back	Select this option to return to the Monitor Info sub-menu

*If an Over Temp or Under Temp shut down occurs, Temp Shutdown is shown on the OSD for approximately 30 seconds, and then the display shuts off until the temperature reaches acceptable temperature limits. The display will then automatically turn back on.

Technician Mode

Technician mode provides the ability to customize and restrict access to the Main menu for specified options. This section describes how to enter, enable and disable options, and exit Technician mode.

Entering Technician Mode

Complete the following list to enter Technician mode:

1. Apply 28V to the display and wait until the status LED turns green (if the display is in auto-off, press the power ON/OFF button).
2. Once the status LED turns green, press the power button to turn it off.
3. Press and hold the power button down for 10 seconds before releasing it (more than 10 seconds is OK).
4. Press the OSD ON/OFF button and confirm that the word **On** or **Off** is shown to the left of each menu option in the Main menu. This verifies that the display is in Technician mode.

Main menu options when starting Technician mode:

On Brightness
On Contrast
On Color
On Tint
On Sharpness
On Backlight
Off Advanced >>

Enabling/Disabling Individual Menu Items

Use the display buttons per normal operation to navigate through menu options. Adjust the menu options as desired and then enable or disable the option for users as desired.

Disable a menu option as follows:

1. Highlight the desired menu option.
2. Press and hold the Select switch in for 5 seconds.
3. Release the Select switch; the next option becomes highlighted and the word OFF appears next to the disabled menu option.

Enabling/Disabling Individual Menu Items Continued...

Enable a menu option as follows:

1. Highlight the desired menu option.
2. Press and hold the Select switch in for 5 seconds.
3. Release the Select switch; the next option becomes highlighted and the word ON appears next to the enabled menu option.

When the monitor is returned to normal mode, any items which were disabled in technician mode will no longer be available in the main menu. It is possible to disable all Main menu items; in this case there will be no user accessible functions in the Main menu.

Note: the Increase and Decrease Value buttons will not work to adjust menu options disabled in Technician mode.

Below is an example of how adjustments in Technician mode affect the appearance and options within the normal Main menu.

Technician Mode Main Menu:	**Normal Mode Main Menu Options:**
On Brightness	Brightness
On Contrast	Contrast
On Color	Color
Off Tint	
Off Sharpness	
Off Backlight	
Off Advanced	

Exiting Technician Mode

To exit the Technician mode, simply turn the power off and on again either with the power button or through the 28V supply.

Troubleshooting

If the monitor does not function properly, refer to the following troubleshooting table for symptoms and possible solutions before contacting Rosen field support.

Notes:

- Always use an oscilloscope to verify the video signal
- Always use a multimeter to verify voltages
- Check actual results against the requirements described in this manual

PROBLEM	POSSIBLE SOLUTION
No power	Verify that the pinout is correct . Push and hold the power switch for about one second. Verify Monitor is fully inserted into base receptacle.
No video on screen	Verify that the pinout is correct. Verify that the video source is on and has a tape or DVD installed. Verify video signal at monitor end, Use an oscilloscope or another monitor.
Screen is black	Verify that the monitor is getting power (green LED on) and the pinout is correct. Verify that the video source is on and has a tape or DVD installed. Verify all connections
Screen is blue	Verify signal at monitor end, Use an oscilloscope or another monitor. Verify that the pinout is correct. Verify that the video source is on and has a tape or DVD installed.

PROBLEM	POSSIBLE SOLUTION
Red LED is on	Monitor is connected to 28 volts but is either switched off or is not receiving a video signal (Standby mode) An over temp or under temp occurred (see pages 11 and 12)
Image is distorted	Verify that the pinout is correct. Use the OSD Monitor Info sub-menu to verify that a signal is present and not too high or low (see page 11) Examine system for pinched or damaged cables
Image is black and white when switching between SECAM and PAL	If the image is black and white when switching from SECAM to PAL video standard, press the Select switch

Technical Support

For field support or to order parts, contact Rosen Aviation Displays at: 1-888-668-4955

or visit us at: www.rosenaviation.com

Specifications

LCD Performance	
Screen Resolution (pixels)	640 w x 480 h
Display Viewing Area	5.14 x 3.84 in
Viewing Angle (At contrast ratio 10:1)	
Horizontal	±50º
Vertical	+35º up -45º down
Contrast Ratio	300:1 (Typical)
Backlight Lamp Life	30000 hours continuous operation
Screen Brightness	400 cd/m^2 (Typical)
Mechanical Packaging	
Arm Mount Weight	(See Appropriate Drawing)
Power Requirements	28V DC 350 mA Nominal
Video Performance	
Video Standards	NTSC, PAL, SECAM, RS-170 (B&W)
Video input	1V Peak-to-Peak, 75 Ohms
Operating Temperature	0ºC - 50ºC Free Air Installation 0ºC - 40ºC Insulated Installation
Warranty	2 year

DO-160D Testing

This Display is compliant with and has been tested to applicable DO-160D standards. For specific information contact a Rosen Customer Service Representative at 1.888.668.4955.

Disclaimer

All information, including illustrations, is believed to be reliable. Users and/or installers, however, should independently evaluate the suitability of each product for their application. Rosen makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use or installation. Rosen's only obligations are those in the Rosen Standard Terms and Conditions of Sales for this product, and in no case will Rosen be liable for any incidental, indirect or consequential damages arising from the sale, resale, use or misuse of the product. Specifications are subject to change without notice. Rosen reserves the right to make changes - without notification to buyer - to materials or processing that do not affect compliance with any applicable specifications.